

CLAIMS

What is claimed is:

- 1 1. A method for enabling access to an interface, the method comprising the steps of:
2 receiving a first description of a user interface that is written in a first computer
3 language and that describes one or more user interface elements;
4 receiving a second description written in a second computer language that describes
5 one or more user commands and one or more instructions associated with each
6 user command of said one or more user commands;
7 receiving a user command of said one or more user commands;
8 in response to receiving said user command, executing at least one instruction of the
9 one or more instructions associated with said user command; and
10 wherein executing at least one instruction of the one or more instructions causes
11 accessing functionality associated with at least one user interface element
12 described by said first description.

- 1 2. The method of Claim 1, wherein said user command is a user command conveyed
2 audibly by a user.

- 1 3. The method of Claim 1, where said user command is a user command conveyed
2 through a phone.

- 1 4. The method of Claim 1, wherein said user command is received using a modality of
2 interaction that, according to said first computer language, is not defined by said first
3 description for said at least one user interface element.

- 1 5. The method of Claim 4, wherein said modality of interaction is an audio modality of
2 interaction.

1 6. The method of Claim 1, wherein the step of executing at least one instruction includes
2 executing a particular instruction that includes a particular command for processing
3 items of text defined by said first description according to said first computer
4 language.

1 7. The method of Claim 6, wherein the step of executing said particular instruction
2 causes setting a value that indicates the location of an item of text in said first
3 description that contains one or more strings.

1 8. The method of Claim 7, wherein said particular instruction includes one or more
2 parameters that specify one or more values of said one or more strings.

1 9. The method of Claim 6, wherein the step of executing said particular instruction
2 causes locating an item of text in the first description and storing text from the item of
3 text in a data structure that holds data that may be output to a user.

1 10. The method of Claim 9,
2 wherein said first description includes a first item of text at a location that precedes
3 the location of any other item of text defined by said first description; and
4 wherein the step of executing said particular instruction causes locating the first item
5 of text in the first description.

1 11. The method of Claim 6, wherein the step of executing at least one instruction
2 includes:
3 executing an instruction that includes a command for establishing a minimum amount
4 of text and a parameter value that specifies said minimum amount; and
5 wherein executing said particular instruction causes locating an item of text that has
6 at least said minimum amount of text.

1 12. The method of Claim 1, wherein the step of executing at least one instruction includes
2 executing a particular instruction that includes a particular command defined by said

3 second computer language for processing links defined by said first description
4 according to said first computer language.

1 13. The method of Claim 12, wherein the step of executing said particular instruction
2 causes setting a value that indicates the location of a link in said first description that
3 contains one or more strings.

1 14. The method of Claim 13, wherein said particular instruction includes one or more
2 parameters that specify one or more values of said one or more strings.

1 15. The method of Claim 12, wherein the step of executing said particular instruction
2 causes establishing a set of N number of links defined by said first description.

1 16. The method of Claim 15,
2 wherein the step of executing at least one instruction includes executing another
3 instruction that:
4 includes another command defined by said second computer language, and
5 identifies a specific link from said set of N number of links; and
6 wherein the step of executing said other instruction causes accessing a resource
7 identified by said specific link from said set of N number of links.

1 17. The method of Claim 16, wherein the other instruction specifies a string used to
2 identify said specific link from said set of N number of links.

1 18. The method of Claim 16, wherein each link in said set of N number of links is
2 associated with a position in said set, wherein the other instruction includes a
3 parameter value that specifies the position of said link from said set of N number of
4 links.

1 19. The method of Claim 12,
2 wherein said first description defines a table with one or more rows and at least one
3 column that includes one or more links; and
4 wherein the step of executing said particular instruction causes accessing a resource
5 identified by a link in said at least one column in a particular row from said
6 one or more rows.

1 20. The method of Claim 19, wherein said particular instruction includes a parameter
2 value identifying said at least one column.

1 21. The method of Claim 1, wherein the step of executing at least one instruction includes
2 executing a particular instruction that includes a particular command defined by said
3 second computer language for processing rows in one or more tables defined by said
4 first description according to said first computer language.

1 22. The method of Claim 21, wherein the step of executing said particular instruction
2 causes setting a value in a data structure that indicates the location of a particular row
3 in said first description that contains one or more strings.

1 23. The method of Claim 22, wherein said particular instruction includes one or more
2 parameters that specify one or more values of said one or more strings.

1 24. The method of Claim 22,
2 wherein the step of executing at least one instruction includes executing another
3 instruction that includes another command defined by said second
4 programming language; and
5 wherein the step of executing said other instruction causes text from another row
6 residing in a location after said location of said particular row in said first
7 description to be added to a data structure that holds data that may be output
8 to a user.

1 25. The method of Claim 22,
2 wherein the step of executing at least one instruction includes executing another
3 instruction that includes another command defined by said second
4 programming language; and
5 wherein the step of executing said other instruction causes text from another row
6 residing in a location before said location of said particular row in said first
7 description to be added to a data structure that holds data that may be output
8 to a user.

1 26. The method of Claim 21, wherein the step of executing said particular instruction
2 causes:
3 locating a particular row defined by said first description; and
4 storing text from the particular row in a data structure that holds data that may be
5 output to a user.

1 27. The method of Claim 21,
2 wherein a row cursor identifies a first location of a first row;
3 wherein said particular instruction contains one or more parameter string values;
4 wherein executing said particular instruction causes:
5 locating a second row that:
6 resides in said first description at a second location after said first
7 location, and
8 contains said one or more parameter string values; and
9 storing text from rows located between said first location and said second
10 location in a data structure that contains data that may be output to a
11 user.

1 28. The method of Claim 1, wherein the step of executing at least one instruction includes
2 executing a particular instruction that includes a particular command for processing
3 one or more fields in one or more forms defined in said first description according to
4 said first computer language.

1 29. The method of Claim 28,
2 wherein the method further includes the step of storing one or more values for said
3 one or more fields; and
4 wherein executing said particular command causes submission to a server of said one
5 or more values for said one or more fields.

1 30. The method of Claim 28,
2 wherein said particular instruction includes one or more parameter values that
3 identify a particular field from said one or more fields; and
4 wherein executing the particular instruction causes:
5 prompting the user for user input,
6 receiving said user input that specifies a particular value, and
7 storing said particular value in association with said particular field.

1 31. The method of Claim 30,
2 wherein said particular instruction includes a parameter string value specifying words
3 with which to prompt said user; and
4 wherein the step of prompting includes causing said words to be conveyed said user.

1 32. The method of Claim 30,
2 wherein said particular instruction includes a parameter string value identifying a file
3 containing a digital audio data recording of a prompt; and
4 wherein the step of prompting includes causing said digital audio data to be played to
5 said user.

1 33. The method of Claim 30,
2 wherein said first description defines, according to said first computer language, said
3 particular field as an enumerated field and value identifiers for the enumerated
4 field; and
5 wherein executing the particular instruction causes examining said first description to
6 generate data indicating the value identifiers and values associated with said
7 value identifiers.

1 34. The method of Claim 33,
2 wherein said user input specifies a particular value identifier from among said value
3 identifiers; and
4 wherein the step of storing said particular value includes storing the value associated
5 with the particular value identifier.

1 35. The method of Claim 33, further including the steps of:
2 receiving another user command for requesting output of said value identifiers; and
3 causing generation of user output that specifies at least a portion of said value
4 identifiers in response to receiving said other user command.

1 36. The method of Claim 1, wherein said first computer language is HTML.

1 37. A computer-readable medium carrying one or more sequences of instructions for
2 enabling access to an interface, wherein execution of the one or more sequences of
3 instructions by one or more processors causes the one or more processors to perform
4 the steps of:
5 receiving a first description of a user interface that is written in a first computer
6 language and that describes one or more user interface elements;
7 receiving a second description written in a second computer language that describes
8 one or more user commands and one or more instructions associated with each
9 user command of said one or more user commands;
10 receiving a user command of said one or more user commands;
11 in response to receiving said user command, executing at least one instruction of the
12 one or more instructions associated with said user command; and
13 wherein executing at least one instruction of the one or more instructions causes
14 accessing functionality associated with at least one user interface element
15 described by said first description.

1 38. The computer-readable medium of Claim 37, wherein said user command is a user
2 command conveyed audibly by a user.

1 39. An apparatus, comprising:

2 a memory;

3 one or more processors;

4 a metabrowser;

5 said metabrowser configured to receive a first description of a user interface that is

6 written in a first computer language and that describes one or more user

7 interface elements;

8 said metabrowser configured to receive a second description written in a second

9 computer language that describes one or more user commands and one or

10 more instructions associated with each user command of said one or more user

11 commands;

12 said metabrowser configured to receive a user command of said one or more user

13 commands;

14 said metabrowser configured to execute at least one instruction of the one or more

15 instructions associated with said user command in response to receiving said

16 user command; and

17 wherein said metabrowser executing at least one instruction of the one or more

18 instructions causes said metabrowser to access functionality associated with at

19 least one user interface element described by said first description.

1 40. The apparatus of Claim 39, wherein said user command is a user command conveyed

2 audibly by a user.

1 41. An apparatus, comprising
2 a memory;
3 one or more processors;
4 means for receiving a first description of a user interface that is written in a first
5 computer language and that describes one or more user interface elements;
6 means for receiving a second description written in a second computer language that
7 describes one or more user commands and one or more instructions associated
8 with each user command of said one or more user commands;
9 means for receiving a user command of said one or more user commands;
10 means for executing, in response to receiving said user command, at least one
11 instruction of the one or more instructions associated with said user command;
12 and
13 wherein executing at least one instruction of the one or more instructions causes
14 accessing functionality associated with at least one user interface element
15 described by said first description.

1 42. The apparatus of Claim 41, wherein said user command is a user command conveyed
2 audibly by a user.